Sample Task A

Statement of Work:

NASA Ames has been asked to consider the management of a new project and is asking you as the Center's prime contractor for spacecraft projects to evaluate the feasibility of this task. For purposes of this exercise, assume the project will have a civil servant Project Manager, Lead Systems Engineer and Lead Safety and Mission Assurance (SMA) Engineer. All other project support is to be provided by the contractor. The project is a free flyer technology demonstration, Project Category 3, Risk Class D mission. The mission involves sending to a LEO destination, 3 satellites weighing no more than 50Kg each, that will fly in precision formation spaced 100 meters apart +/- 5 meters. One satellite will be equipped with solar arrays capable of generating 500W of power. Another satellite will have laser communication with a respective ground station. The third satellite will provide a science platform for future missions. The objective is to demonstrate the following:

- Precision formation flight
- Power beaming from one satellite to another
- Laser communication to a ground station
- Spacecraft to be built and tested in-house at NASA Ames Research Center
- Total mission cost not including launch vehicle is $50M
- Proposed launch date is 2.5 years from project Authority to Proceed

The objective is to determine if the mission is feasible given the technology, budget, schedule and mission constraints specified. To help NASA/Ames make an informed decision, it is requested that the Offeror deliver a plan that identifies additional assumptions, technology constraints, technical and programmatic risks and their mitigations, feasibility studies, schedule, and the staffing required to support such a mission.

Assumptions:

- Authority to Proceed is granted on September 1, 2013
- The project is Category 3, Risk Class D
- The project team will work during standard business hours

The contractor will deliver the following:

- A list of all additional assumptions made (including rationale for assumptions) as the task description may not contain all the information needed to plan for a successful mission

- The top 3-5 technology constraints to achieving mission success and explain their importance

- The top 3-5 technical and programmatic risks and the approach for eliminating or mitigating those risks

- The list and description of feasibility studies recommended to support a successful mission

- A milestone Schedule for accomplishing the mission

- A staffing plan for the full development effort through launch which addresses the complexity of the task and accommodates the requirement that the Project Manager Lead Systems Engineer, and Lead SMA engineer are roles that will be filled by civil servants. Indicate the level of skill/experience required for each staff position identified and indicate the phase(s) of the mission where each position is required

Sample Task B

Statement of Work:

NASA Ames Research Center has recently won a NanoSat (<20kg) mission called ExampleSAT. It will be a 3U CubeSat with the bus consuming a maximum of 1U and the payload a minimum of 2U to fly on a Launch Vehicle to LEO within 18 months of authority to proceed. The payload will collect essential data for a total of 30 days and store it on board. The bus will downlink sets of collected science data and spacecraft housekeeping data to the Ames Multi-Mission Operations Center (MMOC), when it receives commands to do so, uplinked from the ground. Pointing and stability of the bus are based on the payload selected; autonomous control is not necessary.

The contractor will develop the operations concept for ExampleSAT, including the plan for developing, testing and deploying the Ground Data System and staffing and training the Flight Team. The contractor will define the environments (facilities, networks, hardware and software) required to support the mission's development, test and flight phases and will implement and support those environments.

Assumptions:

- Authority to Proceed is granted on September 1, 2013.
- ExampleSAT is a Category 3 Project, Risk Class D.
- Flight software development is out of scope for this task.
- Science operations are out of scope for this task. Assume that science data will be forwarded to the science team from the MMOC.
- Flight team will work during standard business hours (no active after hours flight control activities).
- Some automation will be required of the Ground Data System to collect data during lights out passes.
- No mission voice support is required for this mission.
- Budget is $3.5M for the entire task.

The contractor will deliver the following:

- A list of all additional assumptions made (including rationale for assumptions)
- A high level description of the operations concept for Phase E of ExampleSAT
- The plan for developing, testing and deploying the Ground Data System, including a description of the required software components (procured and/or developed in-house) and a schedule of milestones
- The plan for staffing and training the Flight Team
- A description of the Mission Environments (facilities, networks, hardware and software) that are required to support the ExampleSAT's development, test and flight phases
- The plan to implement and support the Mission Environments, including hardware and software procurements
- A staffing plan to support Ground Data System development, delivery, and Mission Environment implementation and support
- A cost estimate breakdown (direct labor, subcontracts, hardware and software procurements)